Liebert DM Technical Data Manual

EMERSON
Network Power

Contents

THE LIEBERT DataMate3000 ENVIRONMENTAL CONTROL SYSTEM

The DataMate3000 is a small precise environmental control system specially designed for electrical system room cooling. Featuring high reliability, high sensible heat ratio and big air volume, the system is suitable for controlling the temperature and humidity (optional) in system or computer room to maintain a favorable environment for precise systems such as sensitive systems, process control systems, communication systems and computers.

This system has two models with nominal ratings of 5 kW, 7kW and 12kW respectively, which can be selected according to the actual room heat loads.

Each DataMate3000 consists of an indoor direct expansion evaporator module and an outdoor air cooled condensing module. Both modules are installed on the ground.

The indoor unit has two series, standard DME3000 and DME3000 S series. The DME3000 S series is mainly for 220V/1 Ph/50Hz use and the standard DME3000 is for 380V/3 Ph/50Hz power supply.

The outdoor unit has two models, standard model and Lee Temp model. The Lee Temp model can be used at lower temperature. Detailed parameters are shown in Table 3-1.

The system may also include optional heater and humidifier. Models available for cooling only do not include heater and humidifier.

The standard DataMate3000 system includes cooling parts for temperature control. The optional humidity control uses the optional heater and humidifier to keep the favorable humidity.

Chapter 1   Features and Benefits

Computer Matched-Liebert systems are designed to create the environment required for computers, telecom and other sensitive electronic equipment. DataMate3000 provides complete control of temperature, humidity and air cleanliness on an around the clock basis, as well as the high sensible heat ratio required by sensitive electronic equipment. **Space Saving**-Requires 5 square feet (.5m^2) or less.

Reliable-The Liebert reputation for quality and a nationwide service network ensures maximum uptime.

Designed to Fit-Models available to fit any room without disrupting work-station layout.

Steam Generating Humidifier-The optional humidifier is provided with an automatic flushing circuit strainer, inlet and drain, solenoid valves and necessary control hardware.
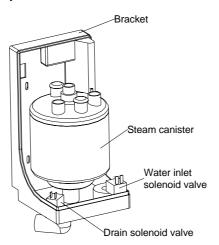
Figure 1-1 humidifier

Air Distribution Fans-Direct drive centrifugal fans are located behind removable panels and are quiet in operation.

Figure 1-2   Fan In Unit

The fans are newly developed and manufactured products with internationally advanced technology of similar products. They have the low noise. With volume ranging from 800m^3/h~ 4000m^3/h, they are driven by single-phase motor directly, low noise, easy speed-control and compact construction.

Figure 1-3   Inner Fan

Intelligent Microprocessor Control- The system controller has a 128×64-matrix dot LCD screen with blue backlight. The man-machine-interface is easy-to-use. Multilevel passwords are configured to prevent unauthorized operation. The program is stored in non-volatile memory. The controller also has functions of high-voltage/low-voltage protection, phase failure protection and phase switchover in case of reverse phase rotation. Users can acquire the accurate running time of major parts by browsing the menu. Expert-level troubleshooting system enables the LCD to display the fault information automatically for convenient maintenance. The controller can store up to 30 history alarms. It can communicate to a host through the RS485 port.

Figure 1-4   Control Panel

Easy Installation-All components of the DataMate3000 are pre-charged and require no field brazing, evaluation or charging. Pre-charged refrigerant lines are available in 15-foot and 30-foot lengths (4.5 and 9m) to connect evaporator and condensing unit modules.

Serviceability-The DataMate3000 is designed with front service access. Routine maintenance and service can be performed quickly and easily.
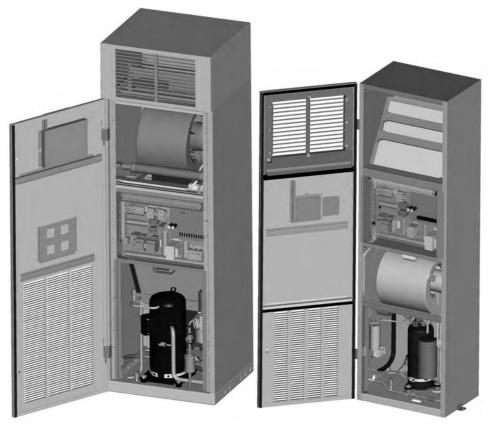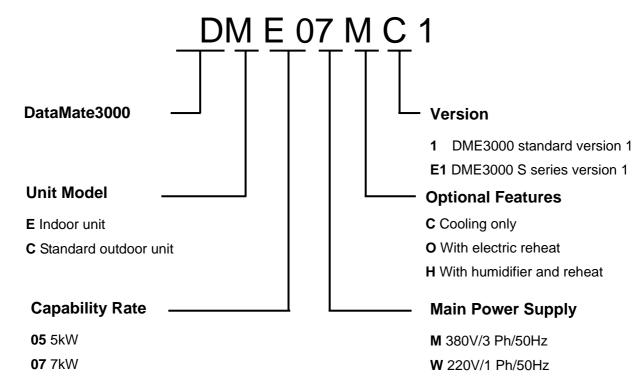
Figure 1-5   Indoor unit appearance(open door)

Chapter 2   Model Configuration

2.1 Model Number Designations

DM E 07 M C 1

DataMate3000

Unit Model

E Indoor unit

C Standard outdoor unit

Capability Rate

05 5kW

07 7kW

Version

1   DME3000 standard version 1

E1 DME3000 S series version 1

Optional Features

C Cooling only

O With electric reheat

H With humidifier and reheat

Main Power Supply

M 380V/3 Ph/50Hz

W 220V/1 Ph/50Hz

2.2 Unit Mechanical Parameters

The mechanical parameters of the indoor units are shown in Figure 2-1 and Table 2-1.

DME3000 Standard   *DME3000 S Series*
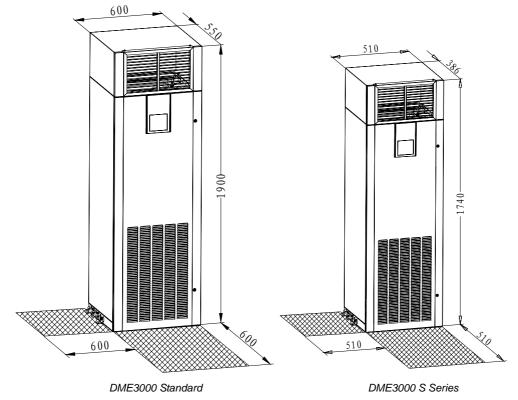
Figure 2-1   Dimensions of indoor unit(unit: mm)

The shadow in Figure 2-1 indicates a reasonable service access area. The indoor units can be installed against a wall.

Air conditioners with heaters should keep a distance of minimum 150mm from combustible substance. When testing the air conditioner, the exterior fine pressure should be kept below 150Pa lest the air quantity should be low and the heater should overheat,

The mechanical parameters of the outdoor units are shown in Figure 2-2, Figure 2-3 and Table 2-1.
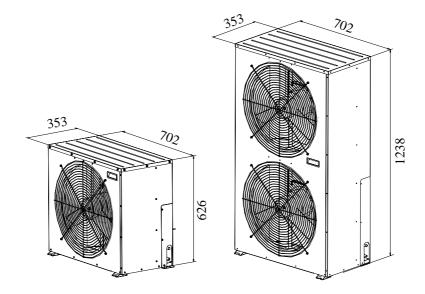
Figure 2-2   Dimensions of standard outdoor units (unit: mm)
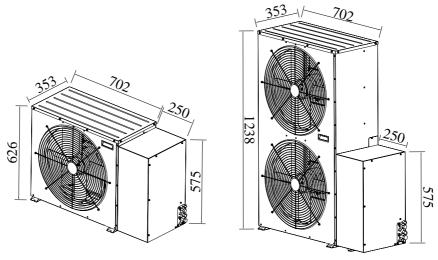
Figure 2-3   Dimensions of Lee Temp outdoor units (unit: mm)

Table 2-1   Mechanical parameters of units

Parameters Models	Cooling capacity (kW)	Dimensions (W*D*H) (mm)	Net weight (kg)
DME05W	5.5	510×386×1740	80
DME07W	7.5	510×386×1740	85
DME07M	7.5	600×550×1900	150
DME12M	12.5	600×550×1900	160
DMC07	-	702×353×626	34
DMC12	-	702×353×1238	58
DML07	-	952×353×626	53
DML12	-	952×353×1238	95

The dimensions of the heater (optional parts) are illustrated below.
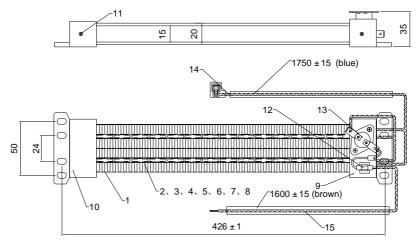
Figure 2-4 Dimensions of heater (unit: mm)

2.3 Units Configuration

Table 2-2 Configuration Table Of Indoor Units And Outdoor Units

Model Series	Main Power Supply	Capability Rate	Indoor Unit			Outdoor Unit	
			Cooling Only	With Reheat	With Humidifier And Reheat	Standard	Lee-Temp
DME3000 S Series	220V/1 Ph/50Hz	5kW	DME05WCE1	DME05WOE1	--	DMC07W1	DML07W1
		7kW	DME07WCE1	DME07WOE1	--	DMC07W1	DML07W1
DME3000 Standard	380V/3 Ph/50Hz	7kW	DME07MC1	DME07MO1	DME07MH1	DMC07W1	DML07W1
		12kW	DME12MC1	DME12MO1	DME12MH1	DMC12W1	DML12W1

2.4 Refrigeration circuit

The compressor (1) pumps the hot gaseous refrigerant into an outdoor air – cooled condenser (2). The liquefied refrigerant flows through the thermostatic expansion valve (3) and then arrives to the evaporator (5). Here the refrigerant, thanks to the heat –exchanged with the room air moved by the fan (5).-evaporates and returns to the compressor (1); From this, the refrigerant begins a new refrigeration cycle. To maintain the correct refrigerant discharge pressure, the speed of the motor fan (6) is controlled (on-off or an optional rate).

The compressor (1) has a crankcase heater to avoid return of liquid return of liquid refrigerant from the condenser in summertime, thus protecting the compressor from undesired refrigerant slugging during the start up.

DME3000 STANDARD   DME3000 S SERIES
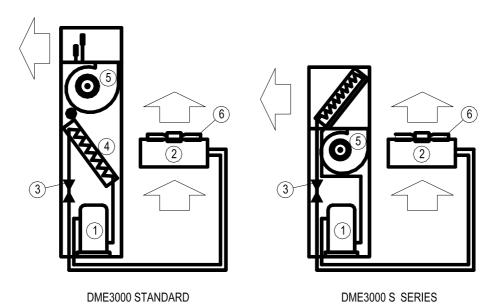
Figure 2-5 System Elements Drawing

Chapter 3   Operation Range

DME3000 are provided for operating within the following working ranges:

Table   3-1

Installing position between indoor unit and outdoor unit	horizontal	≤50m
	vertical	△H[(1)]：-5m≤△H≤20m
Room air conditions	temperature	0°C ~30°C
	humidity	30％~80％RH
Ambient temperature	standard outdoor unit	-15°C ~＋45°C
	with Lee-Temp unit	-34°C ~＋45°C
Altitude		＜1000m [(2)]
Power supply tolerances	voltage	-15％~＋15％ [(3)]
	frequency	±2Hz
Storage conditions	entironment	Indoor, clean (without dust)
	temperature	-40°C ~70°C
	humidity	5％~95％RH
	storage hours	＜6 months[(4)]

Notes:

1) △H = the altitude of outdoor unit - the altitude of indoor unit;

2) The system should be derated where the altitude is higher than 1000m;

3) The error (because of sensors) in 3% is permitted;

4) The shipment and storage time should not exceed 6 months. Otherwise, the system shall be re-tested.

Chapter 4 Technical Data

Table 4-1 Standard DME3000 Technical Data

Nominal Cooling Capacity (kW)		Air cooled	
		7.5	12.5
Indoor Unit Model		DME07MC1 DME07MO1 DME07MH1	DME12MC1 DME12MO1 DME12MH1
Net Capacity Data - kW High Fan Speed			
27DB	Total	8600	13500
50%RH	Sensible	7500	12000
24DB	Total	7900	12800
50% RH	Sensible	6900	11500
22DB	Total	7500	12500
50% RH	Sensible	6800	11300
Net Capacity Data - kW Low Fan Speed			
27DB	Total	8500	13200
50%RH	Sensible	7150	11700
24DB	Total	7800	12550
50% RH	Sensible	6600	11250
22DB	Total	7350	12200
50% RH	Sensible	6650	11000
Fan Data - Direct Drive			
Air Volume - CMH	High	2250	2700
Air Volume - CMH	Low	1950	2400
Fan Motor - W		550	550
Compressor Data - Scroll			
Refrigerant		R-22	R-22
Evaporator Coil - Copper Tube/Aluminum Fin			
Face area - m^2		0.37	0.37
Rows of Coil		2	3
Reheat Data - Electric (Exclude Fan Motor)			
Capacity - kW		4	4
Humidifier Data - Steam Generator Type			
Capacity - kg/h		2.5	2.5
Connection Sizes			
Liquid Line - mm		9.52	12.7
Suction Line - mm		12.7	15.88
Humidifier Supply -OD, mm		20	20
Humidifier Drain - OD, mm		20	20
Evaporator Drain - OD, mm		20	20
Outdoor Unit Options			
Standard Outdoor Unit			
Outdoor Unit Model		DMC07W1	DMC12W1
Air Volume - CMH		2600	5200
Face Area - m^2		0.49	0.98
Rows of Coil		2	2
Motor - W		150	300
Operating Temperature Range - °C		-15~45°C	-15~45°C
Low Ambient Temperature Outdoor Unit - LeeTemp Options			
Outdoor Unit Model		DML07W1	DML12W1
Air Volume - CMH		2600	5200
Face Area - m^2		0.49	0.98
Rows of Coil		2	2
Motor - W		150	300
Operating Temperature Range - °C		-34~45°C	-34~45°C

Table 4-2 DME3000 S Series Technical Data

Nominal Cooling Capacity (kW)		Air cooled	
		5.5	7.5
Indoor Unit Model		DME05WCE1 DME05WOE1	DME07WCE1 DME07WOE1
Power Supply		220V~50Hz	220V~50Hz
Net Capacity Data - kW High Fan Speed			
27DB	Total	5700	7900
50%RH	Sensible	4400	6100
24DB	Total	5500	7500
50% RH	Sensible	4100	5500
22DB	Total	5100	7200
50% RH	Sensible	3700	5200
Net Capacity Data - kW Low Fan Speed			
27DB	Total	5500	7600
50%RH	Sensible	4100	5750
24DB	Total	5200	7100
50% RH	Sensible	3700	5250
22DB	Total	4800	6800
50% RH	Sensible	3400	4900
Fan Data - Direct Drive			
Air Volume - CMH	High	1200	1300
Air Volume - CMH	Low	1100	1200
Fan Motor - W		200	200
Compressor Data			
Refrigerant		R-22	R-22
Evaporator Coil - Copper Tube/Aluminum Fin			
Face area - m^2		0.156	0.208
Rows of Coil		4	4
Reheat Data - Electric (Exclude Fan Motor)			
Capacity - kW		2.7	2.7
Connection Sizes			
Liquid Line - mm		9.52	9.52
Suction Line - mm		12.7	12.7
Evaporator Drain - OD, mm		20	20
Outdoor Unit Options			
Standard Outdoor Unit			
Outdoor Unit Model		DMC07W1	DMC07W1
Air Volume - CMH		2600	2600
Face Area - m^2		0.49	0.49
Rows of Coil		2	2
Motor - W		150	150
Operating Temperature Range - °C		-15~45°C	-15~45°C
Low Ambient Temperature Outdoor Unit - LeeTemp Options			
Outdoor Unit Model		DML07W1	DML07W1
Air Volume - CMH		2600	2600
Face Area - m^2		0.49	0.49
Rows of Coil		2	2
Motor - W		150	150
Operating Temperature Range - °C		-34~45°C	-34~45°C

Notes:

All capacities are nominal values, actual performance will be ±5%.

Chapter 5 Microprocessor Control

The microprocessor control features an easy-to-use menu-driven LCD display. It monitors and displays the operation status of the precision cooling unit to maintain a reasonable environment in the controlled room. The menus, control features and parameter settings are described in this chapter.

5.1 LCD Screen

LCD screen displays English menus with blue backlight. It displays temperature and relative humidity readings, operating mode (cool, heat, dehumidify, humidify), alarm information, current date and time, as shown in Figure 5-1.
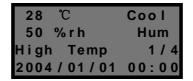
```
28  ℃           Cool
50 %rh          Hum
High Temp       1/4
2004/01/01 00:00
```

Figure 5-1   LCD screen

Users can browse more detailed information such as the operation status of a certain part and alarm information by activating the sub-menus in the main menu screen. The selected item will highlight in a menu. The digit to be changed will highlight when a parameter is being changed.

5.2 Control Buttons

There are nine control buttons on the keypad, namely Up, Down, Left, Right, Enter, Esc, ON/OFF, Mute, and Help buttons, as shown in Figure 5-2.
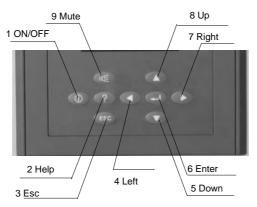
Figure 5-2   Control keypad

1. ON/OFF —— When the system is in standby status after power-on, pressing this button makes it operate, and LCD displays the On screen. When the system is operating, pressing this button switch it to the standby status and LCD displays the Off screen.

2. Help —— Pressing this button displays associated help screen.

3. Esc —— Pressing this button returns to the Normal screen or previous menu/screen or aborts any changes on the input data field before validating the changes.

4. Left —— This button moves the cursor left in the input data field.

5. Down —— This button moves the cursor down the menu or decreases the number in the input data field.

6. Enter —— This button allows entry into the next level of a menu or validates the modified data in the input data field.

7. Right —— This button moves the cursor right in the input data field.

8. Up —— This button moves the cursor up on the menu or increases the value displayed in the input data field.

9. Mute —— If an alarm is present, it will be displayed on the LCD and sound an audible beeper. Pressing this button eliminates the prompted alarm screen and silences the alarm.

5.3   Setpoints

The default setpoints have been configured before delivery. They are configured according to the general operation status or optional components. Change the defaults only when they do not satisfy the user's requirement. Refer to Figure 5-1 for the setpoints and the value range. Users need to enter the password in corresponding level before changing the information such as setpoints, date, time, and so on (refer to section 5.4.4).

Table 5-1   System settable parameters

Menu	Parameter			Default	Min.	Max.
Alam Menu	Alarm Setpoint	High Temp		29°C	The larger value of temperature setpoint plus 5°C and 28°C	45°C
		Low Temp		18°C	5°C	The smaller value of temperature setpoint minus 5°C and 18°C
		High Hum		65%RH	The larger value of humidity setpoint plus 10%RH and 65%RH	90%RH
		Low Hum		35%RH	10%RH	The larger value of humidity setpoint minus 10%RH and 35%RH
	Alarm Outputs	observation alarms		OPEN	STOP	OPEN
		major alarms		OPEN	CLOSE	OPEN
	Custom Alarm	Custom #1		No	No	Other alarms
		Custom #2		No	No	Other alarms
	Service Interval	Main Fan Chng Time		360 days	180 days	720 days
		Humidifier Chng Time		180 days	90 days	360 days
		Filter Chng Time		180 days	90 days	360 days
Set-points	Temp Stpt			24°C	15°C	35°C
	Tem Bias			3°C	1°C	5°C
	Hum Stpt			50%RH	20%RH	80%RH
	Hum Bias			5%RH	1%RH	10%RH
System Menu	Setup System	Monitor	Unit No	1	1	254
		Teamwork	Cntl Brd	0	0	15
			Unit No.	0	0	15
		Start Delay	Hot Start	10 seconds	10 seconds	240 seconds
			Main fan	30 seconds	10 seconds	240 seconds
			Cp Start	90 seconds	10 seconds	240 seconds
			Cp MinOn	180 seconds	60 seconds	300 seconds
			Cp MinOff	180 seconds	60 seconds	300 seconds
			LP Switch	180 seconds	30 seconds	240 seconds
		C/F Degrees		°C	°C	°F
		Hum Control		Rel	Rel	ABS
		Beeper		ON	OFF	ON
		LCD Backlight		ON	OFF	ON
		Contrast		30%	28%	38%
		LowFanSpeed		OFF	OFF	ON
		TempCompsen		OFF	OFF	ON
System Menu	Select Options	Standby	Unit Sta	SGL	SGL	HST/SPR
			Host Time	24 hours	12 hours	48 hours
			Spare Time	24 hours	12 hours	48 hours
			Swtch Time	30 seconds	10 seconds	90 seconds
		Heat		OFF	OFF	ON
		Hum		OFF	OFF	ON
	Sensor Calibrate	Temp Snsr		0.0°C	-5.0°C	+5.0°C
		Hum Snsr		0.0%RH	-10.0%RH	+10.0%RH
	Change Password	Level One		0001	0000	9999
		Level Two		0002	0000	9999

5.4   Control Screen

5.4.1   Off Screen

The LCD displays this screen after the system is powered on. In addition, it will be displayed by pressing the ON/OFF button during system operation, as shown in Figure 5-3. You can press the Left/Right button and the Enter button to select the display language.

EMERSON
English   中文

Figure 5-3   Off screen

5.4.2   On Screen

When the system is in automatic turn-on status after powered on, the LCD displays the On screen. Press the ON/OFF button from the Off screen, and the On screen will also be displayed, as shown in Figure 5-4.

Starting
10s

Figure 5-4   On screen

5.4.3   Normal Screen

After the system is powered on, the Normal screen will be displayed after 10 seconds (default) for heat startup delay or after Enter button is pressed. The Normal screen displays the current temperature and relative humidity readings, operating mode (cool, heat, dehumidify, humidify), alarm information, current date and time, as shown in Figure 5-5.

```
28  ℃          Cool
50  %rh         Hum
High Temp       1/4
2004/01/01  00:00
```
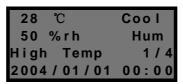
Figure 5-5   Normal screen

5.4.4   Password Screen

There are three levels of password in the microprocessor control.

Level one password (0001) is intended for the ordinary user. Users can view all menus by entering this password, but has no authority to change the parameters except for those of temperature and humidity.

Level two password is intended for trained service personnel. Users can change all parameters by entering this password.

Level three password is intended for the manufacturer's personnel only.

Press Enter button from the Normal screen, Password screen is displayed, as shown in Figure 5-6.

Password: 1 * * *

Figure 5-6   Password screen

Method of entering password:

Press Left/Right button to move the cursor to the digit to be changed, and then Up/Down button to change the value. Press Enter button to validate the password and enter the main menu. Press Esc button to return to the Normal screen.

If the password entered is incorrect, the user can view the menu but cannot change the parameters. The user can return to the Normal screen by pressing Esc button and enter the password again. If the password entered is correct, any parameter under the main menu can be changed.

   📖   **Note**

If press Enter button from the Password screen instead of inputting any password, the user can only view the menu and cannot change the parameters.

5.5   Main Menu

Press Enter button from the Normal screen, enter password and then press Enter to validate the password, the main menu is displayed, as shown in Figure 5-7.
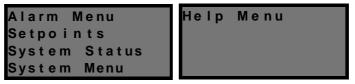
```
Alarm Menu          Help Menu
Setpoints
System Status
System Menu
```

Figure 5-7   Main menu

The items in the main menu are listed below.

Alarm Menu – For setting alarm parameters, browsing alarm history and alarm status.

Setpoints – For setting temperature and humidity parameters, temperature and humidity precision parameters.

System Status – For setting the system date and time and viewing environmental temperature and humidity readings, the date, time, system output status and system operation records.

System Menu – For setting system parameters, configuring system optional components, calibrating sensors, changing password, diagnosing components output, and restoring default values.

Help Menu – For querying product and mantenance information.

5.6   Alarm Menu

Use the Up/Down buttons to move the cursor to Alarm Menu in the main menu and press Enter. The Alarm Menu will be displayed, as shown in Figure 5-8. There are six sub-menus under this menu and they are displayed in two screens. Press Up/Down buttons to scroll all sub-menus.

```
Alarm Status          Custom Alarm
Alarm History         Service Interval
Alarm Setpoint        Reset History        N
Alarm Output
```

Figure 5-8   Alarm Menu

5.6.1   Alarm Status

Select Alarm Status from the Alarm Menu to enter the Alarm Status screen. This screen displays all active alarms. The alarm No/ the total number active, alarm name, the time/date occurrence are indicated for each alarm, as shown in Figure 5-9.

```
Active:              1/4
Hi Temp
2004/01/01         00:00
```

Figure 5-9   Alarm Status screen

The latest alarm is shown as alarm 1. Use Up/Down buttons to scroll if there are more alarms.

This system can store up to 25 latest active alarms. They will be lost when the system is powered off.

5.6.2   Alarm History

Select Alarm History from the Alarm Menu screen to view the Alarm History screen. The screen displays the detailed inactive alarm information or "No alarms" if no inactive alarm exists.

The alarm No./the total number inactive, alarm name, the time/date occurrence are indicated for each alarm, as shown in Figure 5-10.
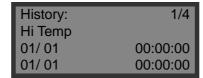
```
History:                1/4
Hi Temp
01/ 01           00:00:00
01/ 01           00:00:00
```

Figure 5-10   Alarm History screen

Use Up/Down buttons to scroll if there are more alarms.

This system can store up to 30 latest inactive alarms. They will not be lost when the system is powered off.

5.6.3   Alarm Setpoint

The alarm setpoints will not be lost when power fails. Select Alarm Setpoint from the Alarm Menu to browse or change the setpoints listed in Figure 5-11.

The defaults are sufficient for most applications and changing them is normally unnecessary. For special application, they must be changed under the guidance of trained professional personnel.

```
Hi Temp              29°C
Lo Temp              29°C
Hi Hum              60%rh
Lo Hum              40%rh
```

Figure 5-11   Alarm Setpoint screen

To change the setpoint, use Up/Down buttons to move the cursor to the item desired to be changed and press Enter to select it. Press Enter again, use Up/Down buttons to change the value of each digit, and then press Enter to validate the change.

Refer to Table 5-1 for the defaults and the setting ranges.

5.6.4   Alarm Output

The alarm output settings will not be lost when power fails. Select Alarm Outputs from the Alarm Menu to browse or change the settings listed in Figure 5-12.

```
Hi Press        ENAB        Hi Hum          ENAB
Lo Press        ENAB        Lo Hum          ENAB
Hi Temp         ENAB        Power Fail      ENAB
Lo Temp         ENAB        ShortCycle      ENAB
```

```
Custom #1       ENAB        Rpr Filter      ENAB
Custom #2       ENAB        Comm Fail       ENAB
Rpr MnFan       ENAB        Coil Froze      ENAB
Rpr Humid       ENAB        Humid Fail      ENAB
```

```
SnsrB Lost      ENAB        Power PL        ENAB
Dschg Temp      ENAB        Power FS        ENAB
Power Lost      ENAB
Power OLV       ENAB
```
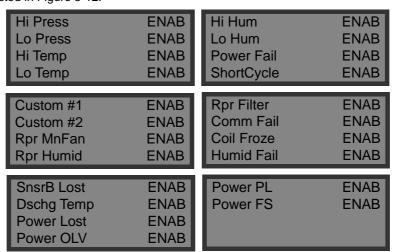
Figure 5-12   Alarm output menu

The alarm output can be set to OPEN, CLOSE or STOP. Move the cursor to the item to be changed, press Enter to move the cursor to the OPEN/ CLOSE /STOP field. Use Up/Down buttons to toggle among OPEN, CLOSE and STOP. Press Enter to validate the setting.

Table 5-2   Alarm output logic

Settings	Alarm History	Alarm Status	Audible alarm	Alarm prompt
OPEN	Yes	Yes	Yes	Yes
CLOSE	Yes	Yes	No	Yes
STOP	No	No	No	No

🕮   **Note**

As the high pressure alarm, low pressure alarm and power failure alarm are major alarms, they cannot be set to STOP.

5.6.5   Custom Alarm

The custom alarm settings will not be lost when power fails. Move the cursor to Custom Alarm on the Alarm Menu, and press Enter to enter the Custom Alarm menu, as shown in Figure 5-13.
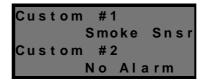
```
Custom  #1
            Smoke  Snsr
Custom  #2
            No  Alarm
```

Figure 5-13   Custom Alarm menu

There are two custom alarms: Custom #1 and Custom #2.

Custom #1 is input through control terminal J67.

Custom #2 is input through control terminal J68.

Use Up/Down buttons to move the cursor to the corresponding row and use Up/Down buttons to toggle among no alarm, smoke sensor, fire sensor, water under floor, no airflow, filter obstructed and others (LCD displays No Alarm, Smk Snsr, Fire Snsr, High Water, Loss Air, Fltr Clog and Others). Press Enter to validate the setting.

5.6.6   Service Interval

Service intervals are applicable to those components that require periodical maintenance. The controller will trigger an alarm to remind the maintenance personnel to maintain the component when the set interval values are exceeded. The main fan, air filter and humidifier can be set with service intervals. Refer to Table 5-1 for the defaults and setting ranges.

These settings will not be lost when power fails. Select Service Intervals from the Alarm Menu and press Enter to display the items listed in Figure 5-14.

```
Main  Fan
Humidifier
Filter
```

Figure 5-14   Service Interval menu

Use Up/Down buttons to move the cursor to the Main Fan, and press Enter to enter the Main Fan Service Interval sub-menu, as shown in Figure 5-15.

```
Run Time          100 d
Rpr time          360 d
Reset              NO
```

Figure 5-15   Main Fan Service Interval sub-menu

The Run Time is the actual operation days of the component. It is real time clock counter days and is unchangeable.

The Spr Time is the recommended operation days of the component. It can be changed. The default value is recommended. Otherwise change it according to the actual condition.

The Reset indicates whether the component has been maintained or replaced or not. Select YES if it is maintained or replaced, and the service time will be reset to zero automatically and then be recounted again. Otherwise, select NO.

5.7   Setpoints

The setpoints will not be lost when power fails. Select the Setpoints from the main menu and press Enter to configure the setpoints listed in Figure 5-16.

TempStpt	24°C
TempSens	3°C
Hum Stpt	50%RH
Hum Sens	5%RH

Figure 5-16   Setpoints menu

Use the Up/Down buttons to select a certain item and press Enter to access the input data field. Use the Up/Down buttons again to increase or decrease the digit. Press Enter to validate the new setpoint.

Refer to Table 5-1 for the defaults of the setpoints in Figure 5-16 and their setting ranges.

5.8   System Status

Use the Up/Down buttons to select System Status from the main menu and press Enter to view the system status information listed in Figure 5-17.
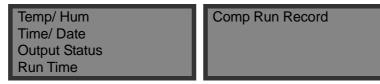
Temp/ Hum
Time/ Date
Output Status
Run Time

Comp Run Record

Figure 5-17   System Status menu

5.8.1   Tem/ Hum

The Tem/ Hum screen precisely displays the indoor temperature and humidity and the outdoor temperature, as shown in Figure 5-18.

In Temp   24.6 ℃
In Hum   67.8%RH
Out Temp 24.6 ℃
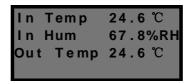
Figure 5-18   Tem/ Hum screen

5.8.2   Time/Date

The Time/Date screen displays the current time of the system in the format of Year/Month/Date and Hour/Minute/Second.

Method of changing the time:

Press Enter button and use Left/Right buttons to move the cursor to the digit to be changed. Then use Up/Down buttons to increase or decrease the value and finally press Enter to validate the value. If the change is successful, the current time will be changed to the set time automatically. Otherwise, the current time will not be changed. The Time/Date screen is shown in Figure 5-19.

2004/01/01
00:00:00
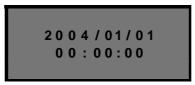
Figure 5-19   Time/Date screen

5.8.3   Output Status

The Output Status screen displays the current output status of the system. Use Up/Down buttons to scroll the items, as shown in Figure 5-20.

Fan	ON	Hum	OFF	Hi Press	Norm
Cool	ON	HosT	OFF	Lo Press	Norm
Heat	OFF	Spare	OFF	ShortCycle	Norm
LoSpd/Dehum	OFF	System	Norm	Unit	Norm

Figure 5-20   Output Status screen

5.8.4 Run Time

Run Time screen displays the total operation hours of the system. Press Up/Down buttons to scroll the items, as shown in Figure 5-21.
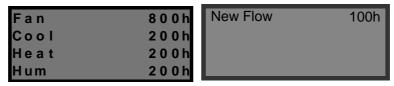
Fan	800h	New Flow	100h
Cool	200h		
Heat	200h		
Hum	200h		

Figure 5-21   Run Time screen

5.8.5 Comp Run Record

Comp Run Record screen displays the total run record of the compressor. Press Up/Down buttons to scroll the items, as shown in Figure 5-22.

Run Record:	1/4
Start Time:	
2004/ 01/ 01	00:00

Figure 5-22   Comp run record screen

5.9   System Menu

Select System Menu from the main menu and press Enter to display the items listed in Figure 5-23.

Setup System	Change Password	
Select Options	Factory Reset	N
Sensor Calibrate		
Diagnostics		
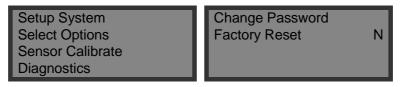
Figure 5-23   System Menu

5.9.1 Setup System

System settings will not be lost when power fails. Select Setup System from the System Menu to display the items listed in Figure 5-24.

Monitor		Hum Control	REL	LowFanSpeed	OFF
Teamwork		Beeper	ON	TempCompsen	OFF
Start Delay		Backlight	ON		
C/F Degrees	℃	Contrast	30%		

Figure 5-24   Setup System sub-menu

Use Up/Down buttons to move the cursor to Monitor as shown in Figure 5-23, and press Enter to display the sub-menu, as shown in Figure 5-25. Press Enter to set the system address for communicating with a host. The setting range is 1~244 and the default value is 1.

| Unit No | 1 |
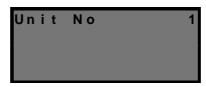
Figure 5-25   Monitor sub-menu

1. Use Up/Down buttons to move the cursor to Teamwork in the System Setup menu, and press Enter to display the Teamwork sub-menu, as shown in Figure 5-26. Use Up/Down buttons to move the cursor to Cntl Board, and press Enter to set the control board number for communication with other control boards. It can be set from 0 to 15, and the default value is 0. Use Up/Down buttons to move the cursor to Unit No, and press Enter to set the unit number. It can be set from 0 to 15, and the default value is 0.

```
Cntl Board              1
Unit NO                 1


```

Figure 5-26   Teamwork sub-menu

2. Use Up/Down buttons to move the cursor to Start Delay in the System Setup menu, and press Enter to display the sub-menu, as shown in Figure 5-27. The default values and the setting ranges of the delays in Figure 5-27 are listed in Table 5-1.

```
Cold Start      180s      Cp MinOn        180s
Hot Start        10s      Cp MinOff       180s
Main Fan         30s      LP Switch       180s
Cp Start         90s
```

Figure 5-27   Start Delay sub-menu

3. Press Up/Down buttons to move the cursor to C/F Degrees in the System Setup menu, and press Enter to set the displayed temperature unit to Celsius (°C) or Fahrenheit (°F). The default unit is Celsius scale.

4. Use Up/Down buttons to move the cursor to Hum Control in the System Setup menu and press Enter to set the humidity control method to absolute humidity control or relative humidity control. The default method is relative humidity control.

5. Use Up/Down buttons to move the cursor to Beeper in the System Setup menu, and press Enter to set the beeper to ON or OFF. The default is ON.

6. Use Up/Down buttons to move the cursor to Backlight in the System Setup menu, and press Enter to set the backlight to ON or OFF. The default setting is ON.

7. Use Up/Down buttons to move the cursor to Contrast in the System Setup menu, and press Enter to set the contrast of the LCD. The setting range is from 28% to 38%, and the default setting is 30%.

5.9.2   Select Options

The optional function settings will not be lost when power fails. Select Options from the System Menu to display the functions listed in Figure 5-28.

```
Heat               OFF
Hum                OFF
NewFlow            OFF
Standby
```

Figure 5-28   Select Options menu

1. Use Up/Down buttons to move the cursor to Heat, and press Enter to set the optional heater to ON or OFF. The default setting is OFF.

2. Use Up/Down buttons to move the cursor to Hum, and press Enter to set the optional humidifier to ON or OFF. The default setting is OFF.

3. Use Up/Down buttons to move the cursor to NewFlow, and press Enter to set the new flow to ON or OFF. The default setting is OFF.

4. Use Up/Down buttons to move the cursor to Standby, and press Enter to display the Standby sub-menu, as shown in Figure 5-29.

Unit Status	SIG
Hst Time	24h
Spr Time	24h
Chg Time	30s

Figure 5-29   Standby sub-menu

1) Use Up/Down buttons to move the cursor to Unit State in the Standby sub-menu, and press Enter to set the system to Hst Time (Duty unit), Spr Time (Standby unit) or Chg Time (Single unit). The default setting is HST.

2) Use Up/Down buttons to move the cursor to Host Time, and press Enter to set the operation cycle of the duty unit. The setting range is from 12 hours to 48 hours and the default setting is 24 hours.

3) Use Up/Down buttons to move the cursor to Spare Time, and press Enter to set the operation cycle of the standby unit. The setting range is from 12 hours to 48 hours and the default setting is 24 hours.

4) Use Up/Down buttons to move the cursor to Switch Time, and press Enter to set the system transfer time delay. The setting range is from 10 seconds to 90 seconds and the default setting is 30 seconds.

When the Unit Sta is set to SPR or SGL. The Host Time, Spare Time and Switch Time can be set, but they are invalidated.

5.9.3   Sensor Calibrate

The technical person can use this function and a precise instrument (0.1°C or 0.1%RH in precision) to calibrate the temperature sensor and humidifier sensor. The settings will not be lost when power fails. Select Sensor Calibrate item from the System Menu to calibrate the items listed in Figure 5-30.

Temp Snsr	0.0 ℃
Hum Snsr	0.0%RH
Reset	NO

Figure 5-30   Sensor Calibrate menu

1. Use Up/Down buttons to move the cursor to Temp Snsr, and press Enter to set the tolerance of the temperature sensor. The setting range is from -5°C to +5°C and the default setting is 0°C.

2. Use Up/Down buttons to move the cursor to Hum Snsr, and press Enter to set the tolerance of the humidifier sensor. The setting range is from -10%RH to +10%RH and the default setting is 0%RH.

3. Use Up/Down buttons to move the cursor to Reset and press Enter button. If it is set to YES, the tolerance settings will be reset to the defaults.

5.9.4   Diagnose

This function is used to detect the output status of the system components. Select Diagnose item to set the items listed in Figure 5-31.

Main Fan	ON
Compressor	ON
Heater	OFF
Humidifier	OFF

Figure 5-31   Diagnose menu

Press Up/Down buttons to move the cursor to the component to be diagnosed and press Enter. Press Left/Right buttons to set it to ON. If the main fan is set to ON, the other components will be set to OFF automatically.

There is a time limit for output diagnosis. When the unit enters output diagnosis status, it will exit the status automatically and returns to normal operation if the output diagnosis status has not changed for a certain period of time (15 seconds for compressor and 5 minutes for other components).

5.9.5   Change Password

The new password will not be lost when power fails. Select Change Password menu from the System Menu to set the level one and level two passwords, as shown in Figure 5-32.
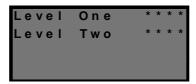
```
Level One      * * * *
Level Two      * * * *
```

Figure 5-32   Change Password menu

Use Up/Down buttons to move the cursor to the password to be changed and press Enter. Use Left/Right buttons to move the cursor to the digit to be changed, and then Up/Down buttons to change the value. Press Enter to validate the password or press Esc to abort.

5.9.6   Factory Reset

Use Up/Down buttons to move the cursor to Factory Reset in the System Menu and press Enter. Use Up/Down buttons to set it to YES and press Enter to validating the setting. Then all the setpoints will be restored to their default values, but the operation time and alarm log will not be cleared.

    Note

As System Reset function will reset all the setpoints configured by the user, be cautious to use it.

5.10   Help Menu

Select Help Menu from the main menu and press Enter to display the items listed in Figure 5-33. The Version Info and Bar Code Info are not disclosed to users. The following just shows how to view the Normal Info and how to view and change the Service Info.

```
Normal  Info
Service  Info
Version  Info
Bar  Code  Info
```

Figure 5-33   Help Menu

5.10.1   Normal Info

Use Up/Down buttons to move the cursor to Normal Info in the Help Menu and press Enter to display the items shown in Figure 5-34.

```
Supplier  Info
Product  Info
Operation Help
```

Figure 5-34   Normal Info screen

Press Up/Down buttons to move the cursor to Supplier Info and press Enter to display the information shown in Figure 5-35.

```
EMERSON  NETWORK
POWER  Co.,  Ltd
```

Figure 5-35   Supplier Info screen

Press Up/Down buttons to move the cursor to Product Info and press Enter to display the information shown in Figure 5-36.

```
DataMate3000
```

Figure 5-36   Product Info screen

Operation Help is not available at present.

5.10.2   Service Info

Select Service Info from the Help Menu and press Enter to display the items listed in Figure 5-37.

```
Service  By
Service  Phone
Service  ACK        N
Service  Record
```
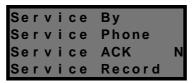
Figure 5-37   Service Info screen

Use Up/Down buttons to move the cursor to Service By item and press Enter to view or change the information about the service personnel, as shown in Figure 5-38.

```
Service  By
Liebert  Enpc
```

Figure 5-38   Service By screen

Use Up/Down buttons to move the cursor to Service Phone item and press Enter to view or change the service phone call, as shown in Figure 5-39.

```
Service  Phone
01238888888
```

Figure 5-39   Service Phone screen
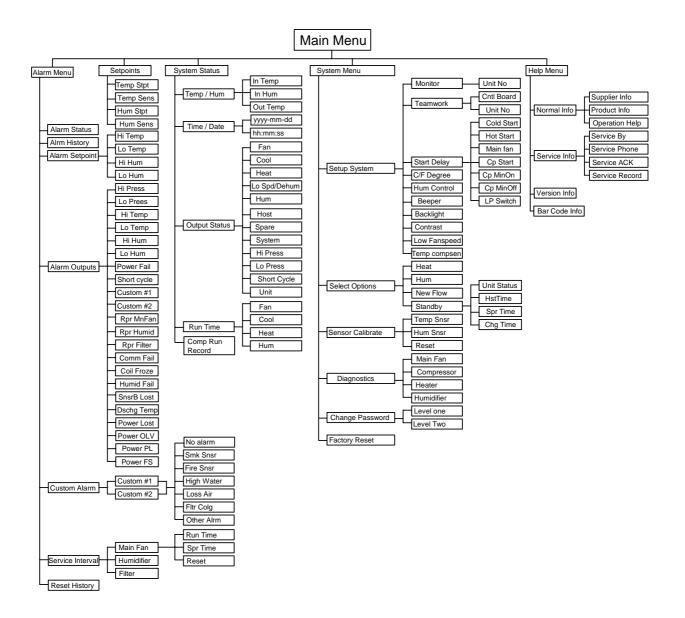
Press Up/Down buttons to move the cursor the Service ACK item, press Left/Right button the select Y and then press Enter to confirm. The service information including service personnel and service time will be recorded and can be view in the Service Record screen.

Use Up/Down buttons to move the cursor to Service Record and press Enter to view all previous service information, as shown in Figure 5-40.
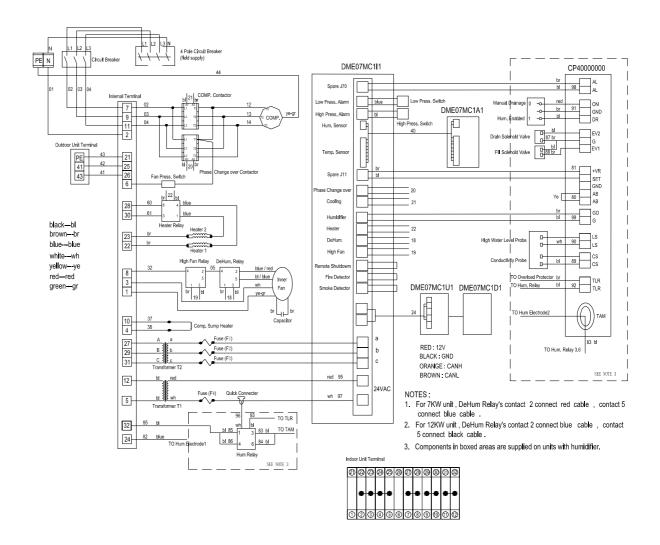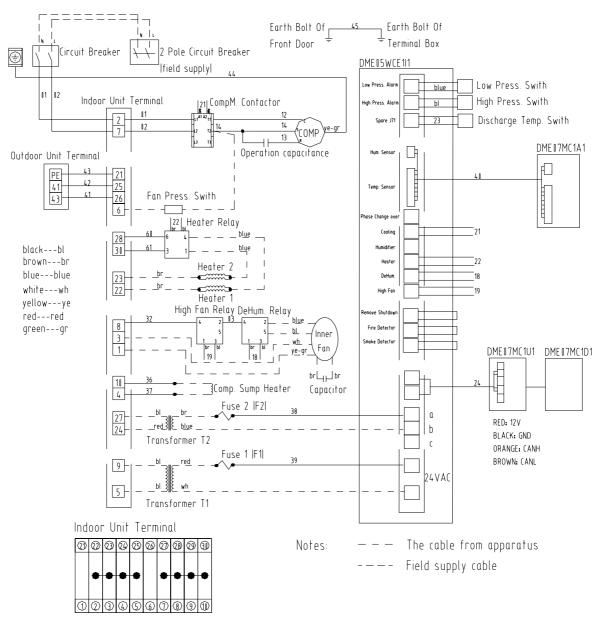
```
Service  Record
                 3/10
Liebert  Enpc
2005/03/15  11:45
```

Figure 5-40   Service Record screen

Appendix 1   Control System Menu Structure

Main Menu

Alarm Menu
Setpoints
System Status
System Menu
Help Menu

Alarm Menu branch:
- Alarm Status
- Alrm History
- Alarm Setpoint
- Alarm Outputs
  - Hi Press
  - Lo Prees
  - Hi Temp
  - Lo Temp
  - Hi Hum
  - Lo Hum
  - Power Fail
  - Short cycle
  - Custom #1
  - Custom #2
  - Rpr MnFan
  - Rpr Humid
  - Rpr Filter
  - Comm Fail
  - Coil Froze
  - Humid Fail
  - SnsrB Lost
  - Dschg Temp
  - Power Lost
  - Power OLV
  - Power PL
  - Power FS
- Custom Alarm
  - Custom #1
  - Custom #2
    - No alarm
    - Smk Snsr
    - Fire Snsr
    - High Water
    - Loss Air
    - Fltr Colg
    - Other Alrm
- Service Interval
  - Main Fan
  - Humidifier
  - Filter
    - Run Time
    - Spr Time
    - Reset
- Reset History

Setpoints:
- Temp Stpt
- Temp Sens
- Hum Stpt
- Hum Sens
- Hi Temp
- Lo Temp
- Hi Hum
- Lo Hum

System Status:
- Temp / Hum
  - In Temp
  - In Hum
  - Out Temp
- Time / Date
  - yyyy-mm-dd
  - hh:mm:ss
- Output Status
  - Fan
  - Cool
  - Heat
  - Lo Spd/Dehum
  - Hum
  - Host
  - Spare
  - System
  - Hi Press
  - Lo Press
  - Short Cycle
  - Unit
- Run Time
- Comp Run Record
  - Fan
  - Cool
  - Heat
  - Hum

System Menu:
- Setup System
  - Monitor
    - Unit No
  - Teamwork
    - Cntl Board
    - Unit No
  - Start Delay
    - Cold Start
    - Hot Start
    - Main fan
    - Cp Start
    - Cp MinOn
    - Cp MinOff
    - LP Switch
  - C/F Degree
  - Hum Control
  - Beeper
  - Backlight
  - Contrast
  - Low Fanspeed
  - Temp compsen
- Select Options
  - Heat
  - Hum
  - New Flow
  - Standby
    - Unit Status
    - HstTime
    - Spr Time
    - Chg Time
- Sensor Calibrate
  - Temp Snsr
  - Hum Snsr
  - Reset
- Diagnostics
  - Main Fan
  - Compressor
  - Heater
  - Humidifier
- Change Password
  - Level one
  - Level Two
- Factory Reset

Help Menu:
- Normal Info
  - Supplier Info
  - Product Info
  - Operation Help
- Service Info
  - Service By
  - Service Phone
  - Service ACK
  - Service Record
- Version Info
- Bar Code Info

Appendix 2   Wiring Diagram

Wiring Diagram Of DME3000 Standard

Wiring Diagram Of DME3000 S Series

Appendix 3   Spare Parts

Indoor Unit Spare Parts：

Spare Parts	Code				Dosage each unit
	DME05WCE1 DME05WOE1	DME07WCE1 DME07WOE1	DME07MC1 DME07MO1 DME07MH1	DME12MC1 DME12MO1 DME12MH1	
Compressor	02520014	02520015	02520011	02520012	1
Compressor Capacitor	08030214	08030316	--	--	1
Crankcase Heater	02510020	02510020	02510001	02510001	1
Inner Fan	32010123	32010123	32010111	32010111	1
Expansion Valve	27010009	27010002	27010002	27010003	1
Sight Glasses	--	--	23500002	23500002	1
Filter	02560003	02560003	02560002	02560002	1
Main control Board	03034252	03034252	03034252	03034252	1
I/O Board	03034390	03034390	03034251	03034251	1
Display/Keyboard Board	03025877	03025877	03025877	03025877	1
Temp./Hum. Testing Board	03025878	03025878	03025878	03025878	1
High Press. Swith	11500000	11500000	11500000	11500000	1
Low Press. Swith	11500001	11500001	11500001	11500001	1
Fan Press. Swith	27090004	27090004	27090004	27090004	1
Fan Relay	11019504	11019504	11019504	11019504	2
Fuse F1	19040090	19040090	19040143	19040143	1
Fuse F2	19040143	19040143	19040143	19040143	1
Fuse F3	--	--	19040143	19040143	1
Fuse F4	--	--	19040090	19040090	1
Circuit Breaker	16020428	16020428	16020174	16020174	1
Compressor Contactor	11020083	11020083	11020074	11020074	1
Transformer T1	09029501	09029501	09029501	09029501	1
Transformer T2	09020138	09020138	09020112	09020112	1
Heater Relay	11019500	11019500	11019500	11019500	1
PTC Heater	02510013	02510013	02510013	02510013	2

Outdoor Unit Spare Parts：

Spare Parts	Code				Dosage each unit
	DMC07W1	DMC12W1	DML07W1	DML12W1	
Outer Motor	32030002	32030002	32030002	32030002	1 or 2 [1]
Fan Vane	32010085	32010085	32010085	32010085	1 or 2 [2]
Temp. Swith	27100006	27100006	27100006	27100006	1
Sight Glasses	--	--	02580001	02580001	1
Receiver	--	--	02570010	02570010	1
Fuse	--	--	19040016	19040016	1
Head Pressure Valve	--	--	16130008	16130008	1
Crankcase Heater	--	--	02510018	02510018	1
Check Valve	--	--	27050002	27050002	1
Press. Swith	--	--	27090003	27090003	1

Notes:

1) DMC07W1/DML07W1 has only one motor, and DMC12W1/DML12W1 has two;

1) DMC07W1/DML07W1 has only one fan vane, and DMC12W1/DML12W1 has two.

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